June 2, 2010

Written Testimony of Kenneth L. Olsen

Regarding S.3404 The Leadville Mine Drainage Tunnel Act of 2010, Subcommittee on Water and

My name is Ken Olsen. I am the chairman of the Lake County Colorado Board of Commissioners and a fifth generation Leadville, Lake County resident. I thank you for the opportunity to brief this sub-committee on the nature and need of this legislation.

Leadville, Colorado is located in mountainous central Colorado at a 10,200 feet elevation and is the highest incorporated city in the United States. The headwaters of the Arkansas River begin here. Leadville exists as one of the most productive mineral rich areas in the country and owes its formation to a long-term legacy of mining since the 1860's. Although we have been blessed with these natural resources, we also are cursed with the accompanying environmental effects of mining activities. Our area has been left to contend with two community pariahs, the Leadville Mine Drainage Tunnel and the 27 year old California Gulch Superfund site. As explained further, the connection of one to the other is inseparable.

The Leadville Mine Drainage Tunnel is an 11,299 foot tunnel that was driven starting in December 1943 as an emergency WWII war effort to de-water and access the Leadville Mining District for the extraction of zinc, lead and manganese. The tunnel was driven under the provision of PL133 of the 78th Congress by the Bureau of Mines. The initial 6000 feet of the tunnel was driven until the war ended in August 1945. The tunnel bore restarted in 1952 due to the Korean conflict and was continued to its current length. I wish to emphasize that the Leadville Mine Drainage Tunnel was driven by the United States Government for obtaining metals for the national defense of this country.

In 1959 the General Services Administration approved the transfer of the tunnel from the Bureau of Mines to the Bureau of Reclamation. Reclamation initially wanted to obtain the water rights from the tunnel as part of the Fryingpan-Arkansas Project. Subsequently, the Bureau gave up on this effort when the amount of water obtainable was insufficient for their needs and the water quality was a concern due to metal contamination. In the late 1960's due to large

sinkholes appearing along the tunnel length the Bureau did perform some mitigation work including placing a pump to reduce rising water levels in the collapsing part of the tunnel and place a bulkhead (plug) about 200 feet from the tunnel entrance to help alleviate a possible blowout of the tunnel. As the tunnel continued to deteriorate, congressional action was instituted by Senator Floyd Haskell in 1976 with S.3394 in an attempt to address the problems created by the lack of maintenance. Of specific concern were the sinkholes adjacent to Colorado State Highway 91, rising water levels, increasing hydraulic head in the area drained by the tunnel, the threat to our local domestic water supply, metals contamination of the Arkansas River and all of its downstream users including the Front Range Municipalities of Aurora and Colorado Springs, that are outside the Arkansas Valley Drainage, and the risk to the trailer park residents at the mouth of the tunnel. The Bureau did not want this legislation and said they would study the problem. In 1991 the Bureau put in a water treatment plant at the tunnel entrance in response to a Sierra Club lawsuit over water quality discharging from the tunnel of which the Bureau operates today.

In 1983 the EPA designated 18 square miles in and around Leadville the California Gulch Superfund site. The site was split into twelve "operable units" for management, however the treatment plant area at the tunnel entrance was not in the Superfund designation area. The bulk of the tunnel length is in operable unit 6 (OU6). In the long, arduous task of Superfund deletion OU6 was issued a Record of Decision (ROD) in 2003, after a lengthy administrative process by the EPA. The selected remedy included the provision that surface water acid rock drainage (ARD) would be placed into the Marion Shaft in the spring runoff season of each year. The Marion connects directly with the LMDT via a short crosscut connection underground. The Bureau, EPA, Colorado Department of Health and the public all participated with input in the development of the ROD. The amount of ARD placed down the Marion each year varies from 3 to 5 million gallons, is usually 3 to 5 weeks out of the year and is highly contaminated primarily with zinc, cadmium and iron.

The selected remedy for OU6 no doubt has made operation of the LMDT plant more difficult both in operational costs and treatment methods. What is also difficult to ascertain is how much of the contaminated surface water gets to the treatment plant via the collapsed tunnel. The treatment plant is highly effective in treating the water it does get from the bulkhead flow and the wells along the tunnel.

In the summer of 2007 the Lake County Commissioners were apprised that the primary pump delivering water to the treatment plant was cavitating (sucking air) and that unusual turbidity was being experienced. We equated this information as a possibility that new collapses were occurring in the tunnel. Due to the known difficulty of this community with the LMDT we began inquiring locally about any other water level anomalies being observed locally. Our investigation led to us calling together various agencies and local private sector parties to compare notes in November 2007. We advised our congressional delegation of the potential risk involved with the continuous increasing hydrostatic head (elevating water levels) in the Leadville area. Subsequently we observed physical signs of high water levels in supersaturated mine dumps and across the ground surface where only occasional spring runoff is observed and was now being observed in the late fall. We obtained graphs of recent well data (hydrostatic heads in shafts and wells) and historic levels. We observed in data from the Leadville Sanitation District that they were processing wastewater at the highest level ever recorded. We believed that groundwater was infiltrating sewer mains never before exposed to higher ground water levels.

In February 2008 the Board of Commissioners declared a state of emergency due to the risk of high ground water levels. The result was the drilling of a relief well into the LMDT and the transmission of that "mine pool" water to the LMDT Treatment Plant. The result of the relief well was to drop groundwater levels in the tunnel, relieve hydraulic head to reduce the possibility of a blowout at the tunnel, reduction of the risk to local water supply and Arkansas River contamination, and reduction of the risk to the trailer park residents near the treatment plant.

In January 2009 the County was advised that the EPA was reopening the ROD on OU6 and was intent on capping the remaining historic mine waste rock dumps east of Leadville. The EPA indicated that they believed that the selected remedy for OU6 of placing acid rock drainage down the Marion Shaft was not reliable for the long-run as a remedy. The mine dumps are a valuable tourist draw to our community and we had already been through the public process for OU6 once before. The capping is to be done to reduce the volume of toxic water being produced every spring from the East side of Leadville. It is our observation and experience that the Bureau and EPA have not worked well with each other regarding the LMDT and OU6. Each agency is focused on their own functional area and tasks that they perceive as their mission. The legislation as set-forth in S3404 is needed for the following reasons: clear authority for the Bureau of Reclamation to maintain the LMDT for its entire length and treat all water; authorization for the EPA and Bureau to cooperate in the completion of the remedy

for OU6 and to treat surface water from OU6 as a backup plan if the capping of the waste rock piles is only partially successful.

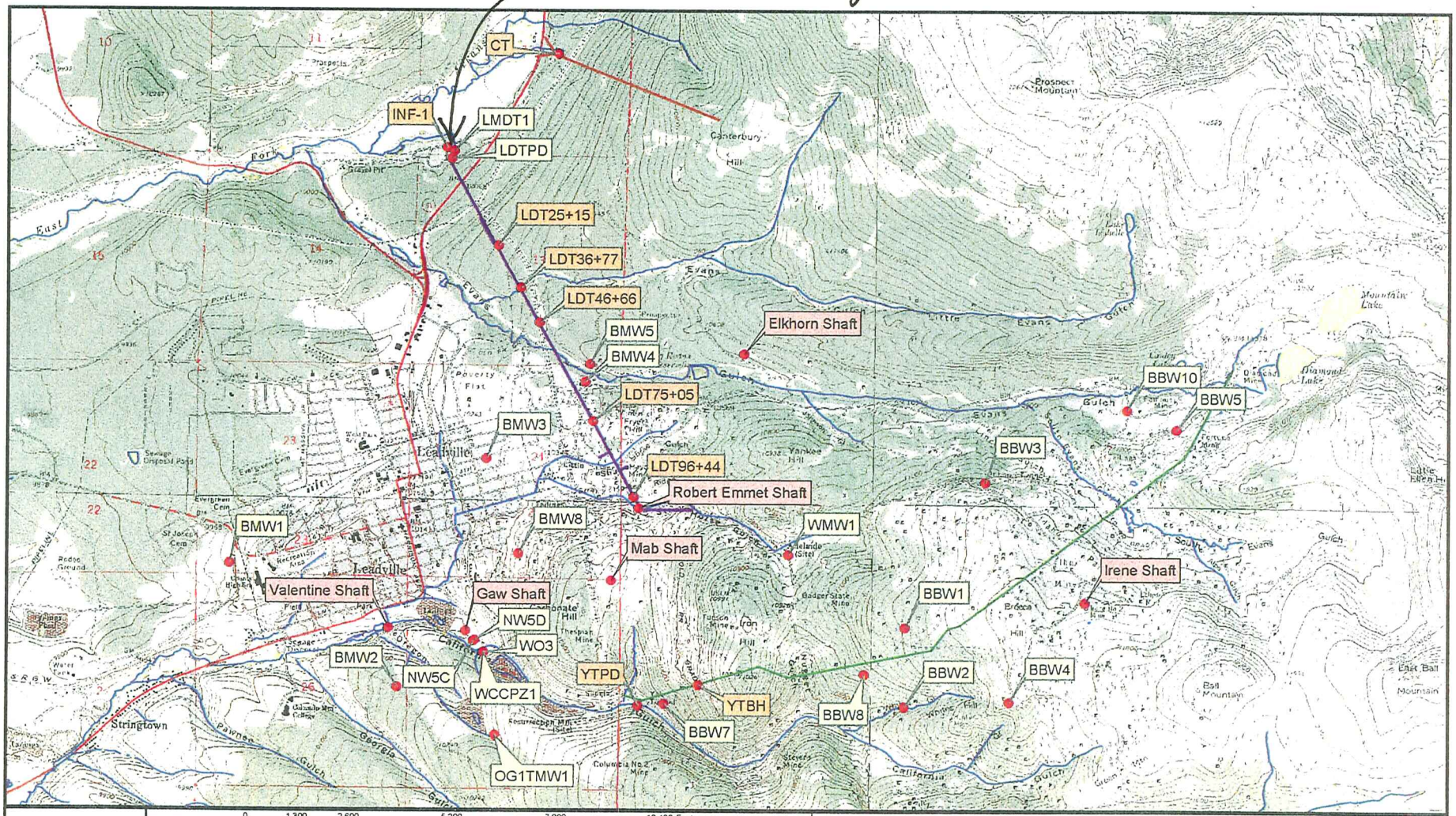
Lake County's continuing struggle with the LMDT and Superfund combined environmental challenges need to be addressed for the long-term. We need this legislation to accomplish the following:

- Require the BOR to have the responsibility and authority to maintain the LMDT for its entire length
- Require the BOR to treat contaminated surface water, if needed, at the LMDT Treatment Plant
- Require the EPA and BOR to jointly cooperate in ensuring water quality in the Arkansas River

We are a small county of 364 square miles, of which, 85% is owned by the Federal and State government. We have no producing mines at present. A large part of our economy is tourism and recreation based. The ability for our community to attract business and remain economically viable would be greatly enhanced by permanently addressing our environmental issues.

We appreciate that both the Bureau of Reclamation and the EPA are attempting to carry out their environmental and public safety tasks. Our community does, however, deserve a reasonably cooperative relationship between the agencies and our public to give all a genuine sense of responsible public safety and environmental protection.

Leadville Mine Drainage Treatment Plant

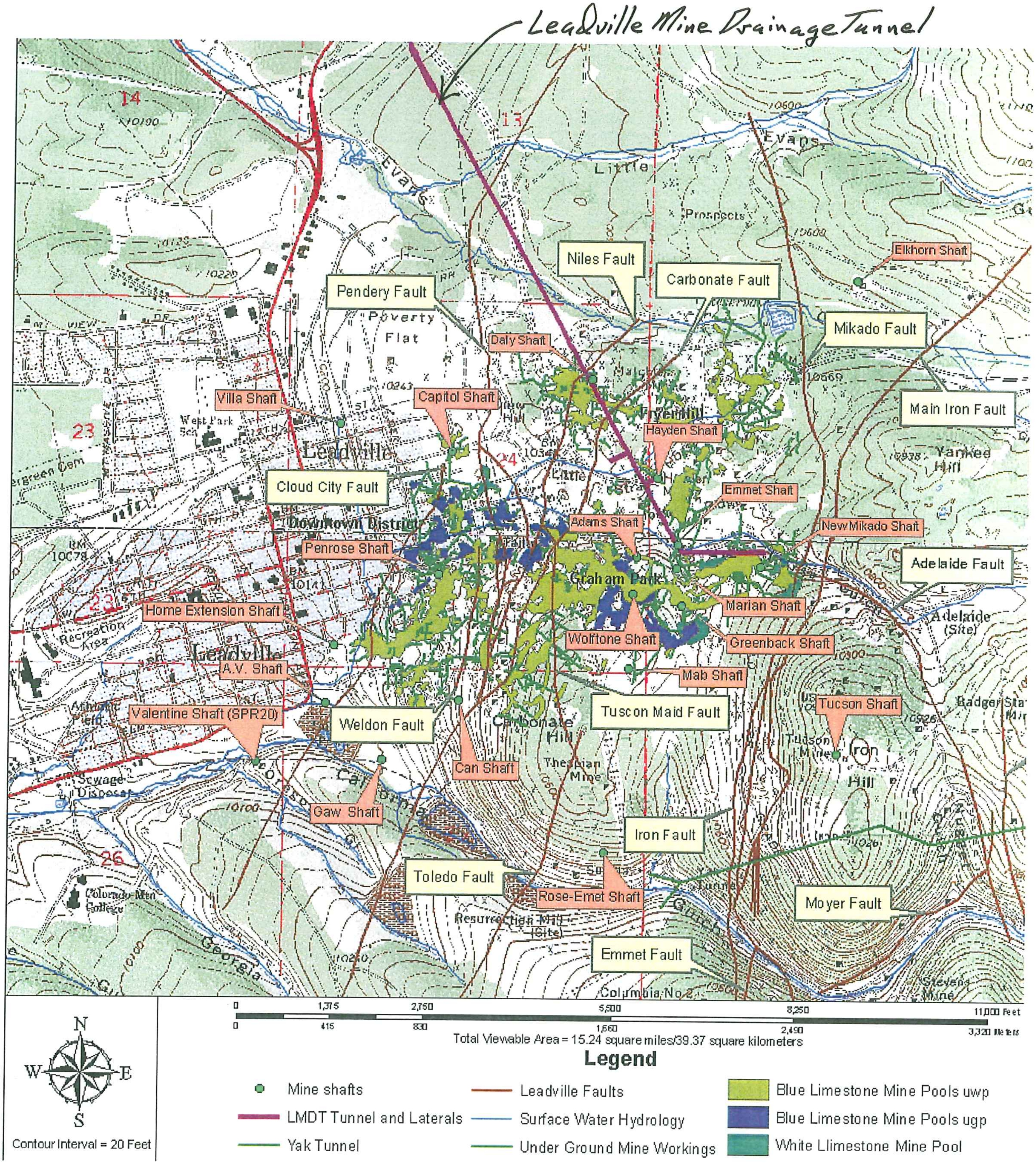


California Gulch Superfund Site OU6/OU12, Lake County Colorado

U.S. Environmental Protection Agency

Ground Water and Mineworking Monitoring Locations

Frontier Environmental Services, Inc. | Created on: Oct, 26 2004 | Checked By: J.N.G. | Created By: A.J.K.


Leadville Mine Drainage Tunnel
Niles Fault
Carbonate Fault
Elkhorn Shaft
Pendery Fault
Poverty Flat
Mikado Fault
Daly Shaft
Main Iron Fault
Villa Shaft
Capitol Shaft
Hayden Shaft
Yankee Hill
Leadville
Cloud City Fault
Emmet Shaft
Downtown District
Adams Shaft
New Mikado Shaft
Penrose Shaft
Graham Park
Adelaide Fault
Adelaide (Site)
Home Extension Shaft
Marian Shaft
Recreation Area
Wolftone Shaft
Greenback Shaft
Leadville
A.V. Shaft
Mab Shaft
Tuscon Maid Fault
Tucson Shaft
Valentine Shaft (SPR20)
Weldon Fault
Carbonate Hill
Can Shaft
Sewage Disposal
Gaw Shaft
Iron Fault
Iron Hill
Toledo Fault
Rose-Emet Shaft
Moyer Fault
Colorado Mtn College
Resurrection Mill (Site)
Emmet Fault
Columbia No 2
Evans
Little
Prospects
West Park Sch
N
W
E
S
Contour Interval = 20 Feet
0 1,375 2,750 5,500 8,250 11,000 Feet
0 415 830 1,660 2,490 3,320 Meters
Total Viewable Area = 15.24 square miles/39.37 square kilometers
Legend
Mine shafts
LMDT Tunnel and Laterals
Yak Tunnel
Leadville Faults
Surface Water Hydrology
Under Ground Mine Workings
Blue Limestone Mine Pools uwp
Blue Limestone Mine Pools ugp
White Llimestone Mine Pool